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EXAMINER	
AZEMAR, GUERSSY	
ART UNIT	**PAPER NUMBER**
2613	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/647,527	VOLKENING, FRED ALLAN	
	Examiner	Art Unit	
	Guerssy Azemar	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 August 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/30/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention. Applicant is required to furnish a drawing under 37 CFR 1.81(c). No new matter may be introduced in the required drawing. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). With respect to claims 18 and 19, the applicant claims subject matter that is not supported by a drawing.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 10 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There was no specific definition in the specification with respect to the chemical compound LiNiBO, nor is it well known in the art or can be found anywhere.

You need to state what is well known

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear what exactly is a LiNiBO phase modulator is.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1 – 4, 9, 11, 13, 14, 16, 20 - 30, 35, 36, 38, 40 - 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Piehler et al. (5,940,196) in view of Turner III (20040042083).

(1) With respect to claim 1:

Piehler et al. teaches a photonic channelized receiver, comprising:

an optical source that produces a plurality of optical signals at respective, spaced wavelengths (70 in figure 5);

an optical combiner configured to combine the plurality of optical signals into a common beam (80 in figure 5);

an electro-optical modulator (86 in figure 5) that modulates the common beam with an RF signal (upward RF arrow going into block 86 in figure 5) to produce sidebands offset from frequencies of the plurality of optical signals by the frequency of the RF signal.

a wavelength splitter (96 in figure 5) configured to separate the filtered, modulated common beam into a plurality of channel output signals (98 and 100 in figure 5) whose intensities are a function of the frequency of the RF signal; and

a plurality of detectors (104 and 108 in figure 5) that respectively measure the intensities of the channel output signals to indicate the frequency of the RF signal (upward arrow into block 86 of figure 5).

However, Piehler et al. does not teach an etalon having a periodic transfer function that filters the modulated common beam such that the optical signals in the filtered, modulated common beam function as receiver channels corresponding to respective RF frequencies.

Turner III teaches an etalon (100 in figure 1) having a periodic transfer function (page 2, paragraph 0009, 4th line from the top) that filters the modulated common beam such that the optical signals in the filtered, modulated common beam function as receiver channels corresponding to respective RF frequencies (page 1, paragraph 4, "the transmitted frequencies (RF frequencies) correspond to the resonance frequencies of the etalon filter").

Piehler et al. uses a RF combiner that adds delays in order to recover the evenly spaced transmitted signals. Turner III teaches a Fabry-Perot etalon that does it

differently. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Piehler et al.'s design to use the etalon as taught by Turner III because it would improve frequency discrimination and signal processing (page 3, paragraph 0018).

(2) With respect to claim 2:

Piehler et al. teaches the photonic channelized receiver, wherein the plurality of optical signals corresponds to a plurality of respective frequency channels (lambda.1 and lambda.2 in figure 5).

However Piehler et al. does not teach the etalon has a plurality of etalon transmission peaks corresponding to the respective frequency channels, such that a frequency offset between a frequency channel's etalon transmission peak and optical signal varies among the frequency channels.

Turner III teaches the etalon has a plurality of etalon transmission peaks corresponding to the respective frequency channels (see graph of figure 4, the peaks on the graph denoted A are of the etalon), such that a frequency offset between a frequency channel's etalon transmission peak and optical signal varies among the frequency channels (see graph of figure 4, the signal's peak is denoted B on the graph, the offset is the space between the two peaks. Figure 5A clearly shows different offsets for different channels).

Piehler et al. uses a RF combiner that adds delays in order to recover the evenly spaced transmitted signals. Turner III teaches a Fabry-Perot etalon that does it differently. Therefore it would have been obvious to one of ordinary skill in the art at the

time of the invention to modify Piehler et al.'s design to use the etalon as taught by Turner, III because it would improve frequency discrimination and signal processing (page 3, paragraph 0018).

(3) With respect to claim 3:

Piehler et al. teaches all of the subject matter as described above except for the photonic channelized receiver, wherein each frequency channel corresponds to an RF frequency that is a function of the offset between the frequency channel's etalon transmission peak and optical signal.

Turner III teaches the photonic channelized receiver, wherein each frequency channel corresponds to an RF frequency that is a function of the offset between the frequency channel's etalon transmission peak and optical signal (page 1, paragraph 0004, "the transmitted frequencies correspond to the resonance frequencies of the etalon filter. Therefore etalon transmission spectra typically comprise a plurality of transmission bands that are evenly separated from one another by the free spectral range of the etalon filter").

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have the frequency channels as taught by Turner III in the photonic receiver of Piehler et al. because it promises to improve frequency discrimination and signal processing (page 3, paragraph 0018).

(4) With respect to claim 4:

Piehler et al. teaches all of the subject matter as described above, except for the photonic channelized receiver, wherein the optical signals are substantially equally

spaced with a first frequency spacing, and the etalon has periodic transmission peaks that are substantially equally spaced with a second frequency spacing different from the first frequency spacing (see n, n+1, n-1...in figure 5A), such that frequency offsets between corresponding optical signals and etalon transmission peaks vary for successive optical signals (In figure 5A, the spacing between the etalon's peak and the signal grow larger as you move away from n).

Turner III teaches the photonic channelized receiver, wherein the optical signals are substantially equally spaced with a first frequency spacing (page 3, paragraph 0019,"with the evenly spaced channels"), and the etalon has periodic transmission peaks that are substantially equally spaced with a second frequency spacing different from the first frequency spacing (page 2, paragraph 0009, " the periodic nature..."), such that frequency offsets between corresponding optical signals and etalon transmission peaks vary for successive optical signals (see graph of figure 5A).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the frequency spacing as taught by Turner III in the channelized receiver taught by Piehler et al. because it would improve frequency discrimination (page 3, paragraph 0018).

(5) With respect to claim 9:

Piehler et al. teaches the photonic channelized receiver, wherein the electro-optical modulator comprises an electro-optical phase modulator (86 in figure 5, column 6, lines 41 - 44).

(6) With respect to claim 11:

Piehler et al. teaches the photonic channelized receiver, wherein the electro-optical modulator comprises an amplitude modulator (column 6, line 42, the reference teaches an intensity modulator, however the examiner understands that the intensity and amplitude are generally interchangeably used and that one is directly related to the other, therefore sees no difference between the intensity modulator and the amplitude modulator. Figure 4 shows a graph of the spectrum in Amplitude vs Frequency).

(7) With respect to claim 13:

Piehler teaches all of the subject matter as described above, except for the photonic channelized receiver, wherein the etalon comprises a Fabry-Perot etalon.

However, Turner, III teaches the Fabry-Perot etalon (100 in figure 1, 400 in figure 2).

The Fabry-Perot etalon is used for controlling the wavelength of light. It is well known to those seeking high precision. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the Fabry-Perot etalon as taught by Turner, III in the receiver taught by Piehler et al. because it is capable of frequency matching an optical signal to a selected frequency standard. In other words, it is very flexible (page 5,paragraph 0038).

(8) With respect to claim 14:

Piehler teaches all of the subject matter as described above, except for the photonic channelized receiver, wherein the etalon comprises a fiber-coupled high-finesse etalon.

Turner, III teaches a fiber-coupled high-finesse etalon (page 5, paragraph 0034).

The etalon comprises two reflectors, which are mentioned in the paragraph mentioned above. Turner, III teaches reflectors, whose level of reflectivity increases with the finesse level of the etalon, that are graded at 100% reflectivity. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the high-finesse etalon as taught by Turner, III in the receiver taught by Piehler et al. because it would make the receiver more cost effective (page 2, paragraph 0029).

(9) With respect to claim 16:

Piehler et al. teaches the photonic channelized receiver, wherein the wavelength splitter comprises a fiber-coupled device (96 in figure 5, the splitter or the demultiplexer is a fiber-coupled device).

(10) With respect to claim 20:

Piehler et al. teaches the photonic channelized receiver, wherein photonic receiver is a photonic RF spectrum analyzer (figure 4, column 3, lines 36, 37).

(11) With respect to claim 21:

All of the limitations of claim 21 are taught in claim 1, which was previously rejected. Therefore claim 21 is also rejected.

(12) With respect to claim 22:

. All of the limitations of claim 22 are taught in claim 2, which was previously rejected. Therefore claim 22 is also rejected.

(13) With respect to claim 23:

All of the limitations of claim 23 are taught in claim 3, which was previously rejected. Therefore claim 23 is also rejected.

(14) With respect to claim 24:

All of the limitations of claim 24 are taught in claim 4, which was previously rejected. Therefore claim 24 is also rejected.

(15) With respect to claim 25:

All of the limitations of claim 25 are taught in claim 9, which was previously rejected. Therefore claim 25 is also rejected.

(16) With respect to claim 26:

All of the limitations of claim 26 are taught in claim 11, which was previously rejected. Therefore claim 26 is also rejected.

(17) With respect to claim 27:

All of the limitations of claim 27 are taught in claim 1, which was previously rejected. Therefore claim 27 is also rejected.

(18) With respect to claim 28:

All of the limitations of claim 28 are taught in claim 2, which was previously rejected. Therefore claim 28 is also rejected.

(19) With respect to claim 29:

All of the limitations of claim 29 are taught in claim 3, which was previously rejected. Therefore claim 29 is also rejected.

(20) With respect to claim 30:

All of the limitations of claim 30 are taught in claim 4, which was previously rejected. Therefore claim 30 is also rejected.

(21) With respect to claim 35:

All of the limitations of claim 35 are taught in claim 13, which was previously rejected. Therefore claim 35 is also rejected.

(22) With respect to claim 36:

All of the limitations of claim 36 are taught in claim 14, which was previously rejected. Therefore claim 36 is also rejected.

(23) With respect to claim 38:

All of the limitations of claim 38 are taught in claim 16, which was previously rejected. Therefore claim 38 is also rejected.

(24) With respect to claim 40:

All of the limitations of claim 40 are taught in claim 20, which was previously rejected. Therefore claim 40 is also rejected.

(25) With respect to claim 41:

Claim 41 is method claim, which teaches all of the limitations of the apparatus claim 1. Claim 1 was previously rejected; therefore claim 41 is also rejected.

(26) With respect to claim 42:

Claim 42 is method claim, which teaches all of the limitations of the apparatus claim 9. Claim 9 was previously rejected; therefore claim 42 is also rejected.

(27) With respect to claim 43:

Claim 43 is method claim, which teaches all of the limitations of the apparatus claim 11. Claim 11 was previously rejected; therefore claim 43 is also rejected.

(28) With respect to claim 44:

Claim 44 is method claim, which teaches all of the limitations of the apparatus claim 2. Claim 2 was previously rejected; therefore claim 44 is also rejected.

(29) With respect to claim 45:

Claim 45 is method claim, which teaches all of the limitations of the apparatus claim 3. Claim 3 was previously rejected; therefore claim 45 is also rejected.

(30) With respect to claim 41:

Claim 46 is method claim, which teaches all of the limitations of the apparatus claim 4. Claim 4 was previously rejected; therefore claim 46 is also rejected.

(31) With respect to claim 47:

Claim 47 is method claim, which teaches all of the limitations of the apparatus claim 1. Claim 1 was previously rejected; therefore claim 47 is also rejected.

8. Claims 5, 6, 8, 12, 15, 31, 32, 34, 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Piehler et al. (5,940,196) and Turner III (US 20040042083) as applied to claim 1 above, and further in view of Lauder et al. (20020109896).

(1) With respect to claim 5:

Piehler et al. and Turner III teach all of the subject matter as described above, except for the photonic channelized receiver, wherein the optical source comprises a plurality of continuous wave lasers.

Lauder et al. teaches the photonic channelized receive, wherein the optical source comprises a plurality of continuous wave lasers (2, 3, 4 in figure 1, page 1, paragraph 0010).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the continuous wave laser as taught by Lauder et al. in the channelized receiver taught by Piehler because it offers potentially the greatest benefit overall in terms of size, cost and reliability (page 2, paragraph 0029).

(2) With respect to claim 6:

Piehler et al. and Turner III teach all of the subject matter as described above, except for the photonic channelized receiver, wherein the optical source comprises a plurality of continuous wave dense wavelength division multiplexed communications laser sources.

However, Lauder et al. teaches the photonic channelized receiver, wherein the optical source comprises a plurality of continuous wave dense wavelength division multiplexed communications laser sources (block 1 in figure 1, contains the sources, modulator, receiver go through a DWDM, which makes the sources dense wavelength division multiplexed).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the plurality of continuous wave dense wavelength division multiplexed communications laser sources as taught by Lauder et al. in channelized receiver taught by Piehler et al. because the receiver would then be cheaper and more reliable (page 2, paragraph 0029).

(3) With respect to claim 8:

Piehler et al. and Turner III teach all of the subject matter as described above, except for the photonic channelized receiver, wherein the optical combiner comprises a Dense Wavelength Multiplexer.

However, Lauder et al. teaches the photonic channelized receiver, wherein the optical combiner comprises a Dense Wavelength Multiplexer (5 in figure 1, "DWDM").

In a system where large capacity is required, it is desirable to use a dense wavelength division multiplexer, which is often used to increase the transmission capacity of a certain system. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the multiplexer as taught by Lauder et al. in the receiver of Piehler et al. since it is well known to be more reliable (page 2, paragraph 0029).

(4) With respect to claim 12:

Piehler et al. and Turner III teach all of the subject matter as described above, except for the electro-optical amplitude modulator comprises a Mach-Zehnder amplitude modulator.

However, Lauder et al. teaches for the electro-optical amplitude modulator comprises a Mach-Zehnder amplitude modulator (page 2, paragraph 0025).

Mach-Zehnder modulator is highly common is high-speed transmission systems. It is generally used as an intensity modulator. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a Mach-Zehnder modulator as taught by Lauder et al. in the receiver taught by Piehler et al. because it would make the system more reliable (page 2, paragraph 0029).

(5) With respect to claim 15:

Piehler et al. and Turner III teach all of the subject matter as described above, except for the photonic channelized receiver, wherein the optical splitter comprises a Dense Wavelength Demultiplexer.

However, Lauder et al. teaches the photonic channelized receiver, wherein the optical splitter comprises a Dense Wavelength Demultiplexer (5 in figure 1, the direction of the arrow indicates either an input or an output of block 5. That makes it either a multiplexer or a demultiplexer.).

In a system where large capacity is required, it is desirable to use a dense wavelength division demultiplexer, which is often used to increase the transmission capacity of a certain system. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the demultiplexer as taught by Lauder et al. in the receiver of Piehler et al. since it is well known to be more reliable (page 2, paragraph 0029).

(6) With respect to claim 31:

All of the limitations of claim 31 are taught in claim 5, which was previously rejected. Therefore claim 31 is also rejected.

(7) With respect to claim 32:

All of the limitations of claim 32 are taught in claim 6, which was previously rejected. Therefore claim 32 is also rejected.

(8) With respect to claim 34:

All of the limitations of claim 34 are taught in claim 8, which was previously rejected. Therefore claim 34 is also rejected.

(9) With respect to claim 37:

All of the limitations of claim 37 are taught in claim 15, which was previously rejected. Therefore claim 37 is also rejected.

9. Claims 7 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Piehler et al. (5,940,196) and Turner III (US 20040042083) as applied to claim 1 above, and further in view of May (20020041611).

(1) With respect to claim 7:

Piehler et al. and Turner III teach all of the subject matter as described above, except for the photonic channelized receiver further comprising Dense Wavelength Division Multiplexed wavelength lockers that lock the optical source to set wavelength offsets from ITU grid wavelengths.

However, May teaches the photonic channelized receiver further comprising Dense Wavelength Division Multiplexed wavelength lockers (As shown in figures 1 and 2, the wavelengths are dense division multiplexed) that lock the optical source to set wavelength offsets from ITU grid wavelengths (page 12, paragraph 0096, "the wavelength detector is slightly offset...the wavelength locker employs the method of fig. 9, to lock the output wavelength to an ITU grid...").

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to lock the optical source as taught by May in the receiver taught by Piehler et al. in order to comply with international standards. Furthermore, May's

technique promises to eliminate chirp, so that signal transmission can be more reliable over longer fiber optic cables and with higher modulation rates (page 4, paragraph 0023).

(2) With respect to claim 33:

All of the limitations of claim 33 are taught in claim 7, which was previously rejected. Therefore claim 33 is also rejected.

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Piehler et al. (5,940,196) and Turner III (US 20040042083) as applied to claim 1 above, and further in view of Sadot et al. (20010022877).

Piehler et al. and Turner III teach all of the subject matter as described above, except for the electro-optical phase modulator comprises a $LiNbO_3$ electro-optical phase modulator.

However, Sadot et al. teaches the electro-optical phase modulator comprises a $LiNbO_3$ electro-optical phase modulator (10 in figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the $LiNbO_3$ phase modulator as taught by Sadot et al. in the receiver taught by Piehler et al. since it is well known in the art for its unique electro-optical properties.

11. Claims 17 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Piehler et al. (5,940,196) and Turner III (US 20040042083) as applied to claim 1 above, and further in view of Schmitz et al. (20020088922).

(1) With respect to claim 17:

Piehler et al. and Turner III teach all of the subject matter as described above, except for the photonic channelized receiver, wherein the detectors are high-speed optical detectors whose outputs yield near real time measurement of the RF signal.

However, Schmitz et al. teaches the detectors are high-speed optical detectors (page 5, paragraph 0040, the reference teaches photo detectors which are the same as optical detectors) whose outputs yield near real time measurement (page 5, paragraph 0042) of the RF signal.

The reference does not explicitly teach high-speed optical detectors. It does however teach photo detectors capable of real time measurements. It should be noted that the real time measurements couldn't be accomplished by any other types than high-speed detectors. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the use to the optical detectors taught by Schmitz et al. to use them in the receiver taught by Piehler et al. because it would make the system faster (page 2,paragraph 0012).

(2) With respect to claim 39:

All of the limitations of claim 39 are taught in claim 17, which was previously rejected. Therefore claim 39 is also rejected.

12. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Piehler et al. (5,940,196) and Turner III (US 20040042083) as applied to claim 1 above, and further in view of Aso et al. (20030048503).

(1) With respect to claim 18:

Piehler et al. and Turner III teach all of the subject matter as described above, except for the photonic channelized receiver, wherein optical source is one of a plurality of optical sources operating in parallel and the electro-optical modulator is one of a plurality of respective electro-optical modulators operating in parallel to provide a wideband channelized receiver capability.

However, Aso et al. teaches the photonic channelized receiver (1020 in figure 27), wherein optical source (1022A in figure 27) is one of a plurality of optical sources operating in parallel (1022A, 1022B, ... operating at frequencies $\lambda 1$, $\lambda 2$) and the electro-optical modulator (1026A in figure 27) is one of a plurality of respective electro-optical modulators operating in parallel (1026A, 1026B, ...in figure 27) to provide a wideband channelized receiver capability (the different frequencies are multiplexed to provide the wideband channelized receiver at 1032 in figure 27).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the light source and modulator as taught by Aso et al. in the system taught by Piehler et al. because it reduces component cost in addition to power consumption (page 12, paragraph 0152).

(2) With respect to claim 19:

Piehler et al. and Turner III teach all of the subject matter as described above, except for the photonic channelized receiver comprising a plurality of corresponding optical sources, electro-optical modulators and etalons operating at different frequency bands to provide a respective plurality of receiver channels bandwidths.

However, Aso et al. teaches the photonic channelized receiver (1020 in figure 27) comprising a plurality of corresponding optical sources (1022A, 1022B, 1022C in figure 27), electro-optical modulators (1026A, 1026B, 1026C in figure 27) and etalons (page 11, paragraph 0148, the reference suggests using a plurality of etalons) operating at different frequency ($\lambda 1$, $\lambda 2$, $\lambda 3$, λn in figure 27) bands to provide a respective plurality of receiver channels bandwidths (those same bandwidths: $\lambda 1$, $\lambda 2$, $\lambda 3$, λn available at the input of the receiver).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to optical sources, modulators and etalons as taught by Aso et al. in the receiver taught by Piehler et al. because it reduces material, which subsequently make the device cheaper (page 12, paragraph 0152).

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guerssy Azemar whose telephone number is (571)270-1076. The examiner can normally be reached on Mon-Fri (every other Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571)272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Guerssy Azemar

09/26/2006

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER